This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-41 (canceled)

Claim 42 (new): A parallel data processing architecture for search, storage and retrieval of data, said parallel data processing architecture comprising:

a plurality of host processors including a root host processor, said root host processor being responsive to client queries;

each of said host and root host processors maintaining a list of available host processors and information about the capacity and load for each available host processor in memory; and

a communication system coupling said host and root host processors; selected host processors storing a database index in memory comprising nodes and data accessible via said nodes.

Claim 43 (new): The parallel data processing architecture of claim 42, wherein at least two host processors have a search engine and maintain information of a search queue;

each of said at least two host processors broadcasting its capacity and load information to other host processors according to a time constant and

each of said at least two host processor bringing its search queue into balance with another host processor in response to receipt of said broadcast capacity and load information.

Claim 44 (new): The parallel data processing architecture of claim 43 wherein the plurality of host processors comprises three host processors, of which two host processors have search engines and maintain information of a search queue and the third comprises said root host processor.

Claim 45 (new): The parallel data processing architecture of claim 43 wherein the plurality of host processors comprises two host processors, of which one comprises said root host processor and both said host processors have search engines and maintain information of a search queue.

Claim 46 (new): The parallel data processing architecture of claim 42, the root host processor being responsive to a client query and using an initial search queue.

Claim 47 (new): The parallel data processing architecture of claim 46, the root host processor creating a search client object.

Claim 48 (new): The parallel data processing architecture of claim 42, the root host processor being responsive to a client query and selecting a host processor to receive search request information.

Claim 49 (new): The parallel data processing architecture of claim 42:

each host processor broadcasting its capacity and load information to other host processors according to a time constant; and

each host processor reconfiguring information on available host processors in response to the receipt of broadcast information.

Claim 50 (new): The parallel data processing architecture of claim 49 wherein the information on available host processors at each available host processor changes in response to failure of a host processor.

Claim 51 (new): The parallel data processing architecture of claim 49 wherein the information on available host processors at each available host processor changes in response to the addition of a host processor.

Claim 52 (new): The parallel data processing architecture of claim 42 wherein said plurality of host processors comprises groups of host processors.

Claim 53 (new): The parallel data processing architecture of claim 52, all host processors in each group operating on the same database.

Claim 54 (new): The parallel data processing architecture of claim 52, each group being assigned a portion of the database.

Claim 55 (new): The parallel data processing architecture of claim 54, each group being assigned a different portion of the database.

Claim 56 (new): The parallel data processing architecture of claim 55, wherein each processor of a group of processors is assigned the same portion of the database.

Claim 57 (new): The parallel data processing architecture of claim 46, wherein said client query requests storage or retrieval of information to be performed and wherein work of said storage or retrieval is distributed among a cooperating group of host processors.

Claim 58 (new): The parallel data processing architecture of claim 42, each host processor maintaining a search queue and broadcasting its capacity and load information to other host

processors according to a time constant and each host processor bringing its search queue into balance with another host processor responsive to receipt of said broadcast capacity and load information.

Claim 59 (new): The parallel data processing architecture of claim 42, at least two host processors having a queue of search requests, each of said host processors executing a search engine, communicating capacity and load information between host processors and said at least two host processors exchanging at least one search request.

Claim 60 (new): The parallel data processing architecture of claim 59, the search engine removing at least one search request from a search queue and generating an additional search request.

Claim 61 (new): The parallel data processing architecture of claim 42, said index being a database tree, said host processors capable of executing a set of tests, associating one test to each non-terminal node of said index.

Claim 62 (new): The parallel data processing architecture of claim 42, said available host processors comprising groups of m processors where m is an integer greater than 1.

Claim 63 (new): The parallel data processing architecture of claim 42, wherein said communications system is proximately located to said root host processor.

Claim 64 (new): The parallel data processing architecture of claim 42, wherein the plurality of host processors comprises at least two host processors having search engines and maintaining information of a search queue, one of said host processors processing a search request and generating a new search request.

Claim 65 (new): The parallel data processing architecture of claim 64, said new search request being generated in response to matches accounting for one of match stringency, mismatch, equivalence, number of alleles and measurement error specifications.

Claim 66 (new): In a parallel data processing architecture for search, storage and retrieval of data responsive to queries, said parallel data processing architecture comprising a) a plurality of host processors comprising at least one root host processor responsive to a client query and at least one host processor; b) a communication system coupling said host processors, said host processors capable of communicating with one another; and c) host processor memory, a method of balancing workload between said host processors characterized by the steps of:

each of said host processors maintaining capacity and load information of said host processors and of a search queue;

each host processor broadcasting its capacity and load information to other host processors according to a time constant; and

each host processor bringing its search queue into balance with another host processor responsive to receipt of said broadcast capacity and load information.

Claim 67 (new): The method of claim 66 wherein the step of bringing a search queue into balance comprises stochastic selection of a host processor to determine the recipient of an exchanged search request.

Claim 68 (new): The method of claim 66 wherein the step of bringing a search queue into balance comprises the step of exchanging a block of search requests between host processors.

Claim 69 (new): The method of claim 66 further comprising the step of changing the size of blocks of search requests.

Claim 70 (new): The method of claim 66, the root host processor using an initial search queue for a query.

Claim 71 (new): The method of claim 66, the root host processor selecting a search queue of another host processor as an initial search queue.

Claim 72 (new): In a parallel data processing architecture for search, storage and retrieval of data responsive to queries, said parallel data processing architecture comprising a) a plurality of available host processors comprising at least one root host processor responsive to a client query and at least one host processor; b) a communication system coupling said available host processors, said available host processors capable of communicating with one another; and c) host processor memory, a method of storing information of available host processors comprising the steps of:

each host processor maintaining information on said plurality of said available host processors and on their capacity and load;

each host processor broadcasting its capacity and load information to other host processors according to a time constant; and

each host processor reconfiguring information on available host processors responsive to the receipt of broadcast information.

Claim 73 (new): The method of claim 72 wherein the information on available host processors at each available host processor changes in response to failure of a host processor.

Claim 74 (new): The method of claim 72 wherein the information on available host processors at each available host processor changes in response to the addition of a host processor.